

about the same size. We have found this costate form common at Algoma, on the east shore of Upper Klamath Lake, Oregon, where it reaches a diameter of 11 mm. or more, and is of dark brown color, though some non-costate specimens from the same locality are larger and a few of them very light greenish. A few specimens from Deschutes River at Bend, Oregon, exhibit similar sculpture less distinctly, but it is accentuated on eroded examples.

PARAPHOLYX EFFUSA DIAGONALIS, new variety.

Mr. E. C. Nelson found a fine lot of *Parapholys* in Crater Lake, Oregon, about half of the specimens of which bear blunt, irregular spiral ribs, varying in number, which pass over the last whorl somewhat diagonally downward to the aperture, crossing the growth lines at approximately right angle. Though this form grades completely into the smooth form of *effusa*, many well-marked examples are so distinct as to deserve a name by which to designate them. The type specimen, Univ. Colo. Mus., No. 15940-a, bears 9 of the diagonal ribs and is 8 mm. in diameter. This form occurs also in the Deschutes River at Bend, Oregon, associated with the smooth form and Hemphill's *costata*.

ARE CERTAIN MARINE PELECYPODS BECOMING LOCALLY EXTINCT?

BY CHARLES W. JOHNSON

When years have passed without finding a living example or even the shell of a species formerly recorded from a given place, one naturally wonders if the species has not been locally exterminated. Many of the species in question, however, are those that burrow deep into the mud and can only be obtained by unusually deep dredging or after severe storms, when tides and changes in currents have greatly disturbed the bottom of the more shallow parts of the coast. It is therefore quite evident that by ordinary dredging we fail to obtain the true status of these mollusks,

and that they may still be living in some favorable situation. The dredging of harbors in the past was the source of some remarkable discoveries, but these dredgings are now usually confined to keeping old channels clear, while harbor pollution, is undoubtedly destroying many of the uncommon mollusks formerly inhabiting the region. This pollution is also affecting the hardy clam and oyster, and has thus become a serious matter from an economic standpoint.

A most interesting shell for New England is the *Barnea costata* Linn. formerly known as *Pholas costata* and popularly called the "Angel-wing." In 1841 Gould says: "This well known species is admitted into our catalogue from the fact that Professor Adams has lately discovered an extensive bed of dead shells at New Bedford. It probably is not to be found in a living state in our waters." In the Gould and Binney edition (1870) we find the following: "With no little surprise I received (Nov. 26, 1845) from Thomas A. Greene of New Bedford a jar containing three living specimens each of *P. costata* and *P. truncata*, which were brought up by the mud-machine at the end of the Long Wharf in that place. From the number obtained in a short time he supposes they must be plentiful. He thinks they burrow two or three feet below the surface."

Verrill (1873) reported dead shells at Woods Hole, and Sumner (1913) reported large fragments on the south shore of Marthas Vineyard, just outside of Great Pond, Tisbury. Thus to my knowledge living specimens have not been taken in southern New England since 1845.

Arca ponderosa was not reported by Gould although valves are frequently found on the southern shores of Massachusetts. Verrill (1873) says: "This species occurs on the beach at Edgartown, Marthas Vineyard. The valves are apparently tolerably fresh though worn." Sumner (1913) says: "Dr. Dall informs us however that the National Museum contains a fresh valve retaining the epidermis." At Chatham, Mass., in 1904 I collected upwards of twenty single valves along the beach toward Monomoy.

Several were scarcely worn and had portions of the periostracum between the ribs and part of the ligament still in place. They could not have been dead for any great length of time, and to find so many at this northern limit of its distribution was surprising.

Having added to the label of *A. ponderosa* the following: "This species has not been found alive on the New England coast", I was surprised one day by a young man who was looking over the collection, suggesting that I change the label, as he had found a living specimen near Woods Hole. I told him that I should like very much to see the specimen, which he promised to bring to the museum, but from that day to this, I have seen neither the man nor a living specimen from New England. I have, however, little doubt that living specimens do exist.

It is interesting to note that *Arca limula* Conr. common in the Miocene and Pliocene of the southern states, and considered the progenitor of *A. ponderosa* has been recorded from the Pleistocene of Sankaty Head, Nantucket, Mass., by Cushman, 1906, and from Long Island, N. Y., by Gratacap, 1914.

Tagelus divisus Spengl. This species was recorded by Gould as common about Rhode Island. Verrill says: Vineyard Sound and Buzzard's Bay, not common". Carpenter was unable to find it in Rhode Island and it is not recorded by Sumner from the Woods Hole region. There is one specimen with valves intact in the Museum of Comparative Zoology collected by the late Rev. H. Winkley at Woods Hole. Specimens marked "Mass.", Miss Pratt collection, are in the Museum,—Boston Society of Natural History.

The shells of *Tagelus gibbus* Spengl. are more common throughout Vineyard Sound and Buzzard's Bay, but living specimens are quite scarce. Sumner records a living specimen taken near Weepecket Isl. in $6\frac{3}{4}$ to $7\frac{1}{2}$ fathoms and Mr. F. N. Balch obtained a living specimen from Monomoy, Mass.

With only these records before us both species must be considered rare in this region. Their burrowing habits,

however, make it impossible for one to say what is the real status of the species.

Divaricella quadrisulcata d'Orb. (*Lucina divaricata* and *L. dentata* of authors). There is a record for this shell at Nahant, Mass., but south of Cape Cod single valves are found in some numbers on the various beaches. Verrill says: rarely obtained alive in Vineyard Sound in 6-14 fathoms.

All of the above shells have their metropolis on the shores of the more southern states, Massachusetts being the extreme northern limit of their range. Living thus under conditions less favorable for their existence one would naturally expect to find only struggling colonies easily exterminated under adverse circumstances. The presence of these shells in numbers so far north, would evidently indicate much warmer conditions in the past and also that we are now dealing with only remnants of what were probably once flourishing colonies of the various species.

Panopea bitruncata Conr. In 1904 I described and figured a fine specimen of this species found in the harbor of Saint Augustine, Fla., about 1883. The animal had only recently been removed and both valves were intact. The specimen is now in the John B. Henderson collection in the National Museum. The species was common in the Pliocene, but even single valves of recent specimens seem to be very rare. The type is a single valve from Fort Macon, N. C. As the animal burrows deeply into the mud or sand, probably far below low water mark, the only possible way to secure a living specimen would be to watch carefully extensive dredgings which might occur along the southern coast. It would be interesting to know if any one has ever found a living specimen.

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NEW SOUTHERN APPALACHIAN LAND SNAILS

BY H. BURRINGTON BAKER

These new forms were obtained during July and August, 1928, in eastern Tennessee, while on a search for anatomical material of some of the peculiar pulmonates from the southern Cumberlands and the mountains along the North Carolina boundary.

HELICODISCUS (HEBETODISCUS) SINGLEYANUS INERMIS, new subgenus and subspecies.

Shell (pl. 3, figs. 1-3): minute, broadly umbilicate, depressed, thin, translucent and with a dull sheen; texture as in genus. Color: yellowish corneous, with darker varicoid lines. Whorls: $4\frac{1}{2}$, quite gradually increasing in diameter and well rounded; last whorl slightly descending; suture distinctly impressed. Sculpture: growth-lines weak except a few varicoid ones on the last whorl (as in *H. parallelus*); surface weakly punctate under high magnification but without trace of spiral ornamentation of any sort. Umbilicus: 2.8 times in major diameter. Aperture: subcircular and almost vertical. Peristome: sharp, but very narrowly ex-